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TRICHOPTERA FROM THE FIJI ISLANDS

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From the Fiji Islands Brauer in 1867 described three species of caddice flies, *Wormaldia nervosa*, *Hydromanicus ruficeps*, and *Hydromanicus piceus*. In 1924 I added three more from material collected by W. M. Mann in 1915, *Goera fijiana*, *Chimarra manni*, and *Chimarra obscurella*. In 1934 Mosely described two more, *Triænodes dubia* and *Hydropsychodes fijiana*; he also places the two *Hydromanicus* of Brauer in the genus *Hydropsychodes*.

From additional material collected by Mr. Mann (part of which was alcoholic) I am adding seven more, making a total of fifteen species, placed in nine genera and four families.

SERICOSTOMATIDÆ

Goera fijiana Bks.

Besides the type there are specimens from Waingaitu and Mt. Victoria, Viti Levu.

CALAMOCERATIDÆ

Anisocentropus fijianus sp. nov.

Yellowish, antennæ, palpi, and legs pale yellowish, darker on vertex and thoracic notum; fore wings yellowish, with fine short black hairs, but otherwise rubbed; stigmal area opaque whitish, from behind this is a curved brownish band with irregular edges, extending to hind margin crossing the middle of the discal and the apical half of the median cell, in certain lights it shows a purplish sheen; hind wings nearly hyaline, with gray hair and fringe.

Fore wings short and broad, nearly as broad as *A. flavicaput*, discal cell only about two-thirds of its pedicel and

hardly longer than second apical cell, fork one back on discal cell hardly width of cell, fork two back on discal cell a little, fork three back on median cell a little, fork four also back on median cell hardly width of cell. Venation of hind wing much like *A. flavicaput*, except that the cross-vein from medius to fork five is not oblique.

Male genitalia largely covered from above by a broad membranous plate with emarginate sides, through the emargination projects a slender clavate bristly appendage, there is a slender pointed median piece above this plate. From side is seen a moderately slender lateral appendage, very hairy, especially below; a smooth median piece (also seen from above) projects below the tip of lateral appendage, two slender hairy ventral pieces.

Fore wing 7 mm. long.

From Wainunu, Fiji Islands (W. M. Mann). Type M.C.Z. No. 22041.

LEPTOCERIDÆ

Notanatolica pallida sp. nov.

Yellowish, vertex and thoracic notum more brown; antennæ pale, with narrow brown annulations; palpi yellowish, with gray hair; legs pale yellowish, front tarsi more brown. Fore wings pale, stigmal area rather dark and back across the anastomosis, two brown streaks at base, one costal, the other between anal veins; hind wings pale and with yellowish veins.

In fore wings the discal cell is hardly one half as long as its pedicel; fork one equals discal cell and has a pedicel two thirds its length, fork three does not quite reach to the cross-vein; the cross-vein from sector to radius is about its length before end of discal cell, the cross-vein from sector to medius also about its length before end of discal cell, cross-vein from medius to cubital fork a little beyond it; hind wings with no fork one; cross-vein from sector to medius about twice its length before end of discal cell, fork three reaches back about opposite end of discal cell, pedicel one third its length.

Male genitalia show above a triangular plate at base, a pair of bristly appendages with sub-parallel sides, and

below there is a smooth piece with bilobed tip; the lateral appendages are rather broad on basal part, smooth, and with a few long bristles toward tip and below, the apical part more slender and hairy, beneath it projects the hooked tip of a spur from the inner basal part.

Fore wing 13 mm. long.

From Wainganiu, Fiji Islands (W. M. Mann). Type M.C.Z. No. 22042.

Triænodes dubia Mosely

A rubbed female, 7 mm. long fore wing, agrees very well with the figure of venation; a short fork one, long discal cell, irregular elongate hyaline white mark over much of the anastomosis. From Wainganiu, Fiji.

Triænodes manni sp. nov.

Yellowish, abdomen slightly brownish, antennæ with narrow ring of brown at apex of each joint. Fore wings yellowish, darker over stigmal region and back broadly over anastomosis, the anastomosis itself being mostly white, some dark along veins toward base of wing, a dark spot at base of fork one and on other veins behind this, and beyond a more or less definite dark band across wing, a larger spot near end of cubitus; in female much of the apical area is brownish, and also most of the basal half of wing, the anastomosis, however, remains white.

In fore wing fork one is much longer than the pedicel, the discoidal cell longer than its pedicel, third apical vein ends a little before tip of wing, no trace of stub to fifth apical vein, but in the field behind the discoidal cell there is a short longitudinal faint line or vein, possibly a remnant of the medius. The genitalia are much on the plan of *T. bættcheri* Ulmer from the Philippines; the slender superior median piece with the longer slender lateral pieces (both more elongate than in *T. bættcheri*), the long slender spine-like processes reaching beyond the lower appendages, and with a slightly out-curved tip; the long median piece is curved down over the end of the lower appendages, and from side as well as above the tip is broad and rounded (pointed

in *T. bættcheri*) ; the lower appendages are long, with blunt, broad tips (narrowed in *T. bættcheri*) and from below each is seen to be bilobed at tip, each has above (as in *T. bættcheri*) a slender curved process from the base.

Length of fore wing 6.5 mm.

From Waingaitu, Fiji Islands (W. M. Mann).

Type M.C.Z. No. 22043.

***Æcetinella pulchella* sp. nov.**

Pale yellowish, vertex and a broad median stripe on thoracic notum brown; antennæ, palpi, and legs pale. Fore wings tinted with brown on most of the apical half, and behind; in basal part with a broad brown band with irregular edges across over the bases of median and discal cells, and an elongate brown spot before this between the radial sector and the medius; stigmal region opaque, whitish, with a brown mark near base, and another near tip; these tend to form bands since the veins behind them are more darkly bordered than the general surface; each apical vein has a dark brown mark at tip, and also at end of anal veins; in some places there are hyaline spots in the brown, mostly along veins in the basal part; hind wings hyaline. The venation is extremely similar to *Æ. confluens*, except that the cross-vein from fork of radial sector to fork of the medius is beyond the end of discal cell (before in *confluens*), the discal cell is longer than in *confluens*, extending back almost as far as median cell (much shorter than median cell in *confluens*), fork one extends a little further back on discal cell, and the end of the median cell is more oblique than in *confluens*.

The male genitalia show above three slender, hairy pieces, the lateral ones the broader, and just below is a long-forked smooth process. From the side the lower appendages of the only male are not the same; on right side is a long curved piece, rather broad throughout, but entire at tip, on the left side is a piece which is broadened and forked at tip, the upper fork long, slender and curving upward.

Fore wings 5 mm. long.

From Waingaitu, Fiji Islands (W. M. Mann).

Type M.C.Z. No. 22044.

HYDROPSYCHIDÆ

***Hydropsychodes fijiana* Mosely**

Many specimens from Waingaitu, Fiji Islands (W. M. Mann).

***Hydropsychodes ruficeps* Brauer**

Three females from Waingaitu, Fiji (W. M. Mann). In this species the subapical spot is further from the outer margin than in *H. fijiana*, and the submedian spot occupies most of the discal cell (in *H. fijiana* just before this cell); the cross-vein from first anal vein to cubitus is more basally placed than in *fijiana* and is very oblique, and just before it is a small patch of white hair (not shown by Brauer). The dark band above antennæ is broader than indicated by Brauer; the fork two goes back on discal cell further than fork one, but hardly as far as in *H. fijiana*; in the maxillary palpi the joints two and three are about equal, and four plainly shorter.

***Hydropsychodes piceus* Brauer**

One female from Waingaitu, Fiji Islands (W. M. Mann) agrees fairly well with Brauer's description; it is a little larger, fore wing nearly 7 mm. long; the discal cell is much smaller than in *H. fijiana*, and fork two is scarcely a bit further back on discal cell than fork one; the cross-vein from first anal vein to cubitus is much more basally placed than in *H. fijiana*, and is scarcely oblique, fork three is longer than in *fijiana* and very slender. In hind wings fork two goes back on discal cell two thirds the length of cell, and fork three is longer than in *fijiana*; the maxillary palpi have joints two, three, and four subequal in length, but four is more slender.

***Polyplectropus manni* sp. nov.**

Head yellowish, vertex scarcely darker, the warts yellow; palpi and antennæ yellowish; pronotum yellowish, mesonotum brownish, rather darker on the sides; abdomen pale brown above, venter paler; legs yellowish, spurs scarcely darker. Fore wings pale yellowish brown, with a long dark

streak over stigmal area to the tip; hind wings rather gray, with scattered black hairs.

In the fore wing the discal cell is over three times as long as broad at tip, fork one shorter than its pedicel, fork two sessile on discal cell, fork three longer than its pedicel, fork four nearly back to end of median cell, fork five back to slightly before the end of anal veins; in hind wings fork one is very short, fork two back almost to cross-vein, fork five back to the cross-vein.

Male genitalia show a slender median superior piece, with a spine at each apical corner, the lateral appendages are broad at base, tapering, somewhat abruptly above near middle, and at tip with a slender, apparently flexible, sinuous part, this appendage is very bristly; the lower appendages are somewhat shorter, broad and heavy, with rounded tips, from below they are divergent; between is a short, slender penis with enlarged tip.

Fore wings ♂ 4.6 mm., ♀ 7 mm.

From Wainganiu, Fiji Islands (W. M. Mann). Type M.C.Z. No. 22045.

Polyplectropus fijianus sp. nov.

Head yellowish, vertex scarcely darker; palpi and antennæ pale yellowish, latter rather heavy; pronotum pale yellowish, mesonotum reddish brown, except lobes in front of the wings which are yellow; abdomen dark brown, genitalia pale; legs (including spurs) pale yellowish.

Fore wing yellowish brown, costal and especially the stigmal region much darker; hind wings nearly hyaline. In the fore wings the discal cell is nearly three times as long as broad at tip, fork one with moderately long pedicel, fork two back a little on discal cell, fork three with a long pedicel, fork four reaching only a little basally of fork three, fork five almost back to mediocubital cross-vein.

Genitalia with a slender superior median appendage, seen from side the tip upcurved; lateral appendages with a superior subbasal process and a sharp curved tip; inferior appendages long and thick, on the upper edge a little beyond middle is a long curved hook or tooth.

Fore wings ♂ 5 mm.

From Mt. Victoria, Viti Levu, Fiji Islands (W. M. Mann).
Type M.C.Z. No. 22046.

***Chimarrha signata* sp. nov.**

Head pale, a large triangular black spot between ocelli; palpi pale brown; antennæ dull yellowish; pronotum pale; mesonotum brown, except the yellow scutellum; legs dull yellowish, spurs brown.

Fore wings brown, uniform, except for a large hyaline-white spot in middle, over the discal and median cells and the space between them; hind wings brown in apical and costal parts, elsewhere nearly hyaline. Fore wings with discal cell hardly twice as long as broad, the radial sector just before it slightly curved, and the radius above the discal cell is also a little curved; forks one and two sessile on discal cell, fork three very much shorter than pedicel, fork five opposite base of discal cell. In hind wings fork one is extremely short, fork two back to discal cell, fork three also extremely short.

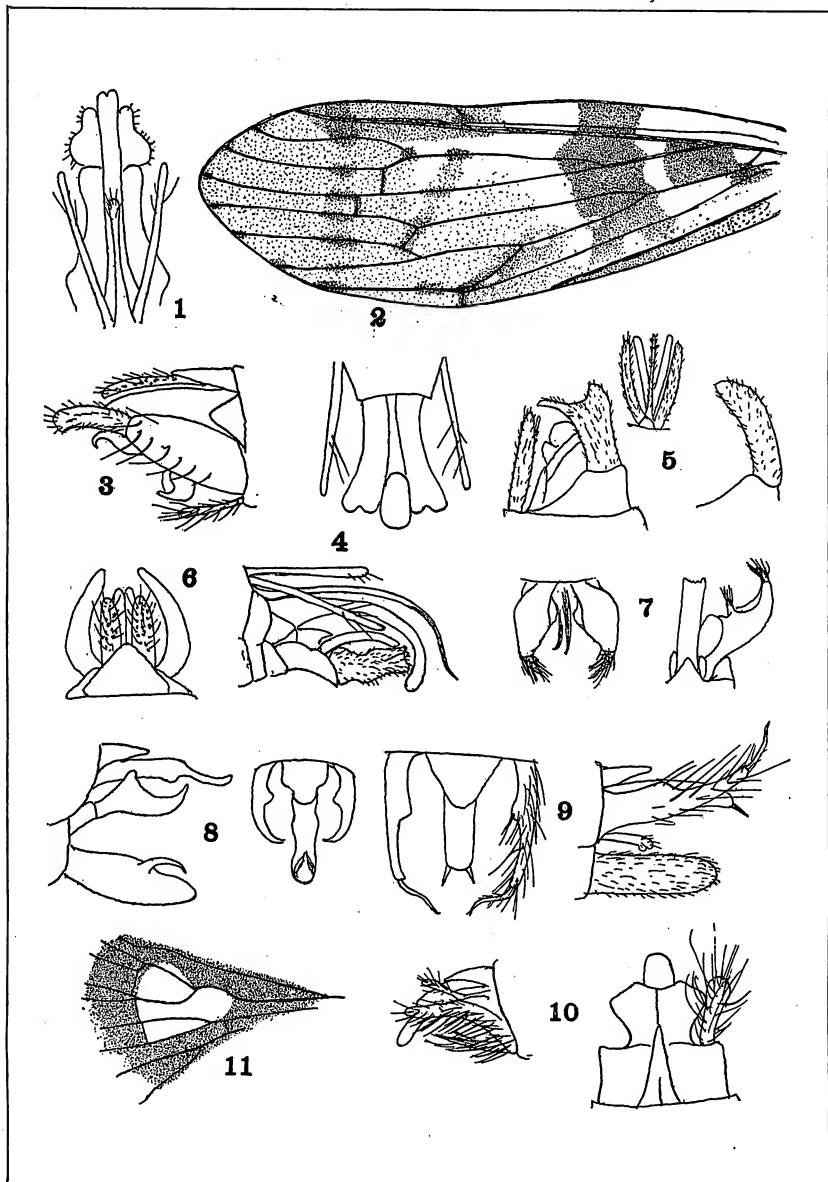
Male genitalia show the lower appendages swollen near middle on outer side, the apical part small, pointed, and very hairy; from above the lower appendages show a sub-basal projection tipped by stiff bristles, between these processes are two long slender dark rods.

Fore wings 4.3 mm. long.

From Taviuni, Somo Somo, Fiji Islands (W. M. Mann).
Type M.C.Z. No. 22047.

EXPLANATION OF PLATE 2

- Fig. 1. *Triænodes manni*, genitalia, above.
- Fig. 2. *Oecetinella pulchella*, forewing.
- Fig. 3. *Notanotolica pallida*, genitalia, side.
- Fig. 4. *Triænodes manni*, genitalia, side and below.
- Fig. 5. *Oecetinella pulchella*, genitalia, side, above, and left clasper.
- Fig. 6. *Notanotolica pallida*, genitalia, above.
- Fig. 7. *Chimarrha signata*, genitalia, above and below.
- Fig. 8. *Polyplectropus fijianus*, genitalia, side and above.
- Fig. 9. *Polyplectropus manni*, genitalia, above and side.
- Fig. 10. *Anisocentropus fijianus*, genitalia, side and above.
- Fig. 11. *Chimarrha signata*, part of forewing.



Banks — Trichoptera from Fiji Islands.